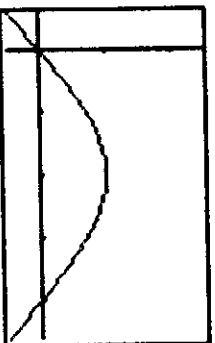


Exploring Properties of Definite Integrals

Recall the definition of the definite Integral as a limit of a Riemann sum.

$$\lim_{n \rightarrow \infty} \sum_{i=1}^n f(x_i) \Delta x = \int_a^b f(x) dx$$

Let's begin with the definite integral: $\int_0^{\pi} \sin x dx$.



Guess, then evaluate $\int_0^{\pi} \sin x dx =$ _____

Use this result to guess, and then evaluate, the following definite integrals. Some of the results will lead to a property.

1. $\int_{\pi/2}^{\pi} \sin x dx =$ _____

Property: _____

2. $\int_{\pi}^0 \sin x dx =$ _____

Property: _____

3. $\int_{\pi}^{2\pi} \sin x dx =$ _____

Property: _____

4. $\int_0^{2\pi} \sin x dx =$ _____

Property: _____

5. $\int_0^{\pi} 2 \sin x dx =$ _____

Property: _____

6. $\int_0^{\pi} 2 + \sin x dx =$ _____

Property: _____